Thorns, Spines and Prickles

Thorns, spines, and prickles represent growths from the stem, leaf, fruit, or root that are sharp and woody at maturity.

Thorns and spines are modification of existing organs such as stems, leaves or stipules.

Prickles or emergences are outgrowths derived from epidermal and subepidermal layers in locations other than nodes (where stems, leaves or stipules arise).

Back to stem and leaf modification menu

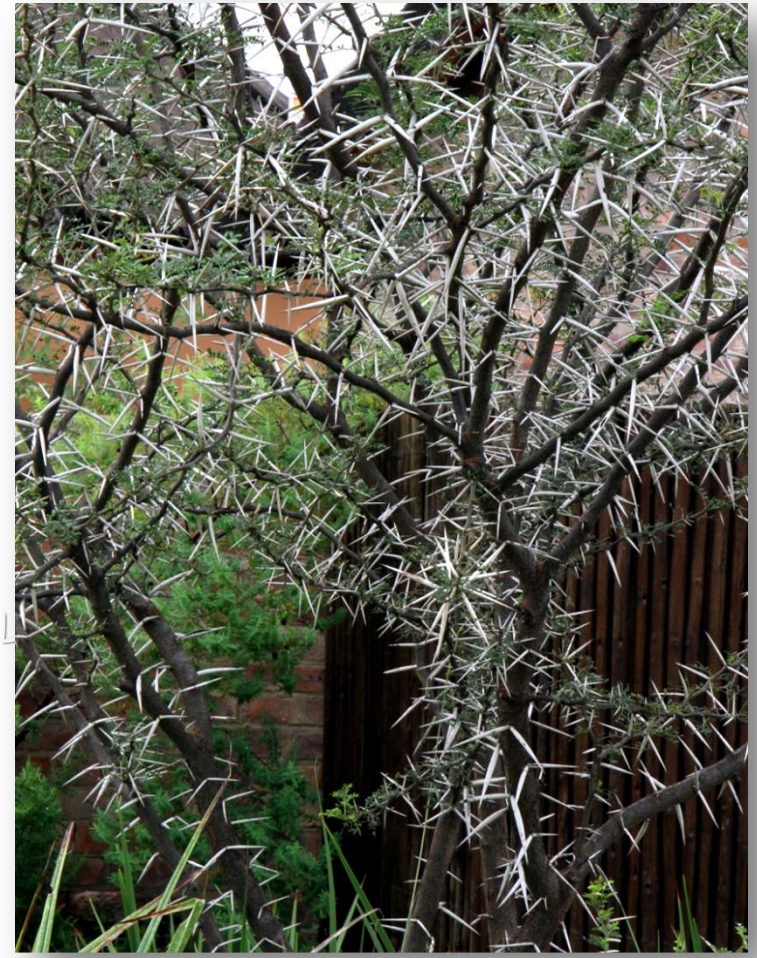
Next

Back to vegetative parts main menu

Main menu

Thorns, Spines and Prickles

Thorns, spines and prickles can be very formidable and this *Acacia* nicely illustrates how these structure would deter animals from feeding on "thorn"- armed stems.



Thorns, Spines and Prickles

Thorn – A sharp pointed modified stem.

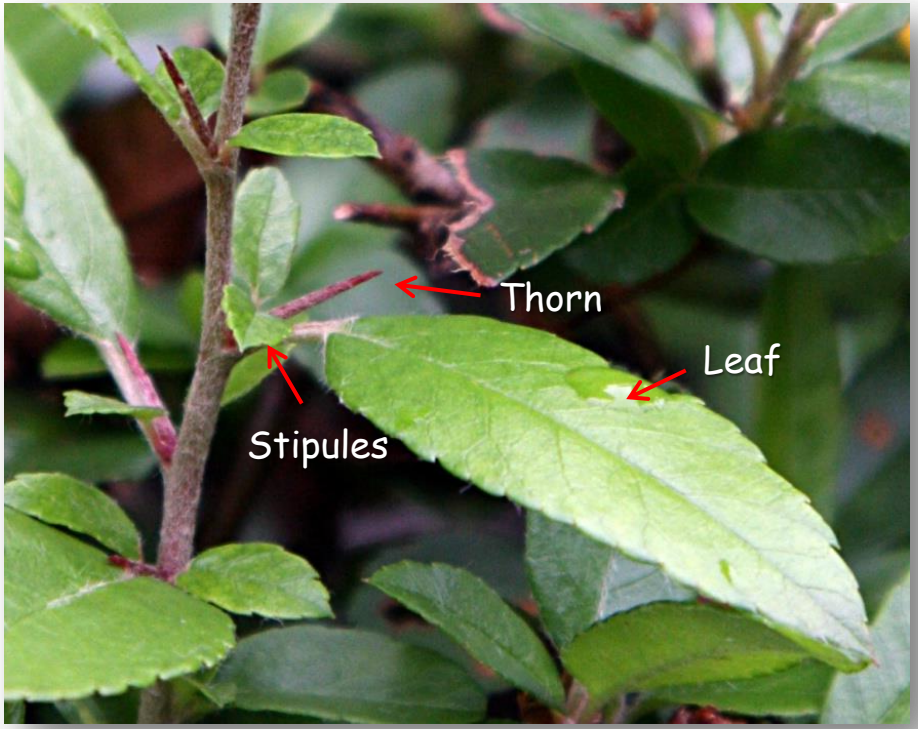
Spine – A sharp pointed structure that is a modified leaf or stipule.

Prickle – A sharp outgrowth from the epidermis or bark.

Thorns, Spines and Prickles

Thorns (stem spine)

A thorn is a modified stem and can be recognized because it is subtended by a leaf.



Thorns, Spines and Prickles

Thorns (stem spine)

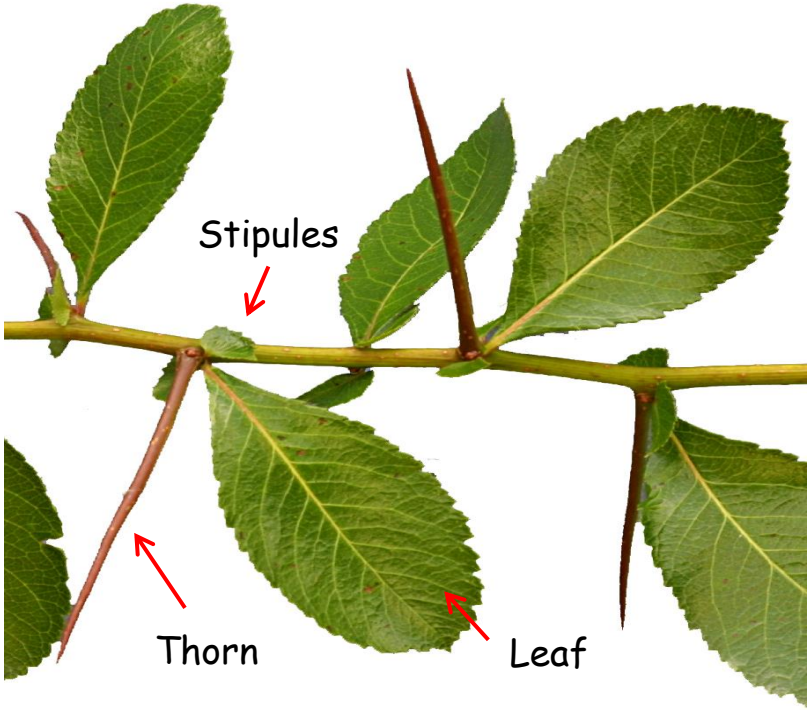
Thorns may be branched or un-branched.

Branched thorns in honeylocust
(*Gleditsia triacanthos*)

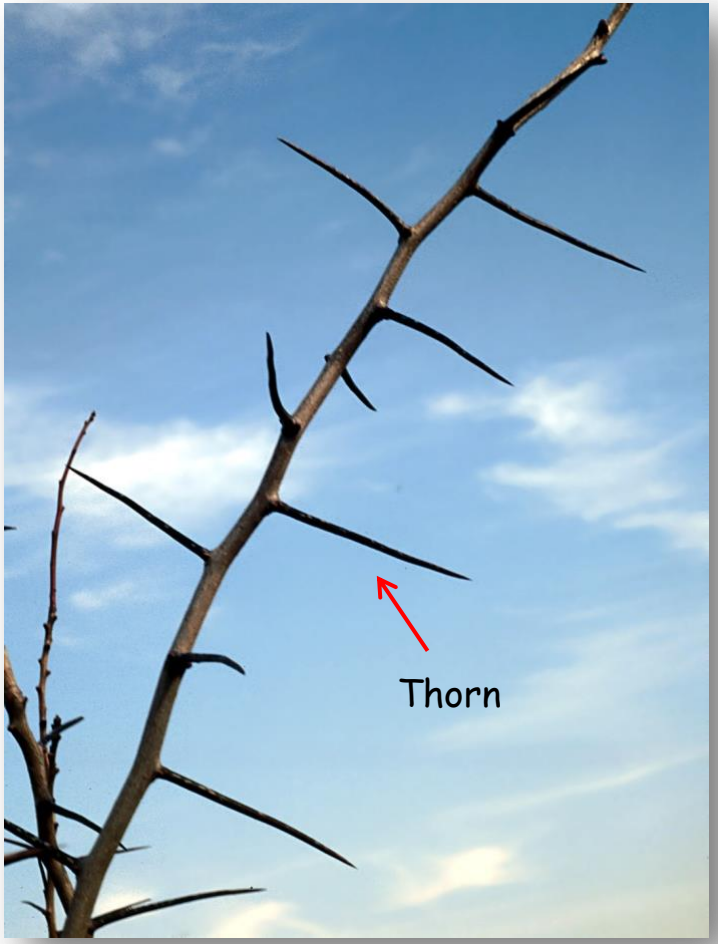
Thorns, Spines and Prickles

Thorns (stem spine)

Hawthorn has an un-branched thorn.



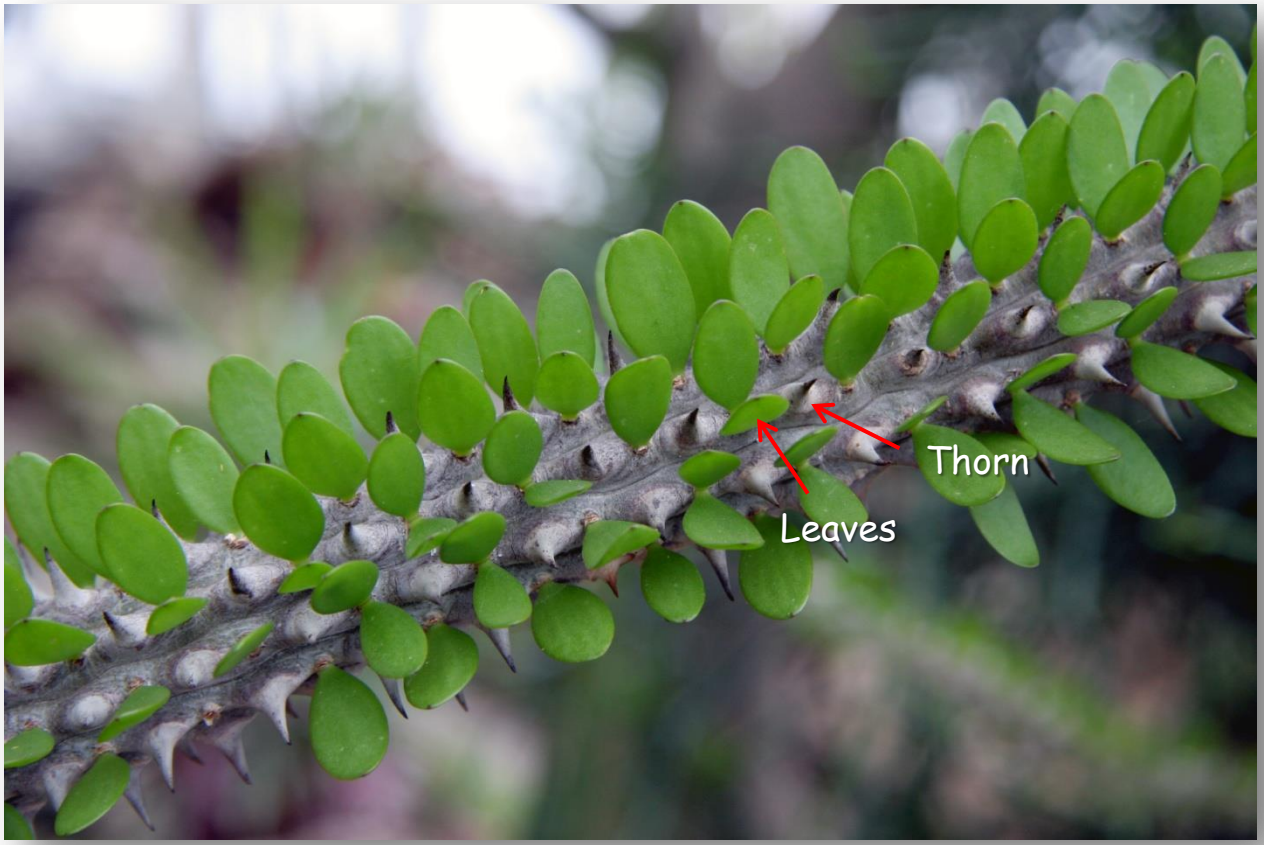
Cockspur hawthorn (*Crataegus crus-galli*)



Thorns, Spines and Prickles

Thorns (stem spine)

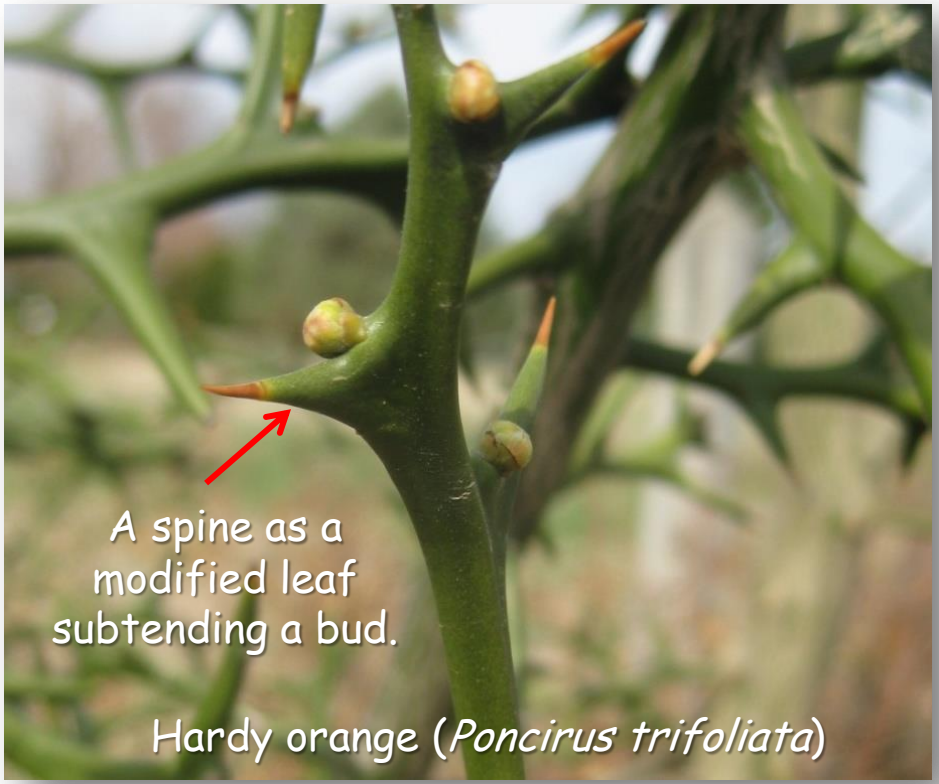
In *Alluaudia*, each pair of leaves subtends a thorn.



Thorns, Spines and Prickles

Spines

A spine is a sharp pointed structure that is a modified leaf or stipule.



Thorns, Spines and Prickles

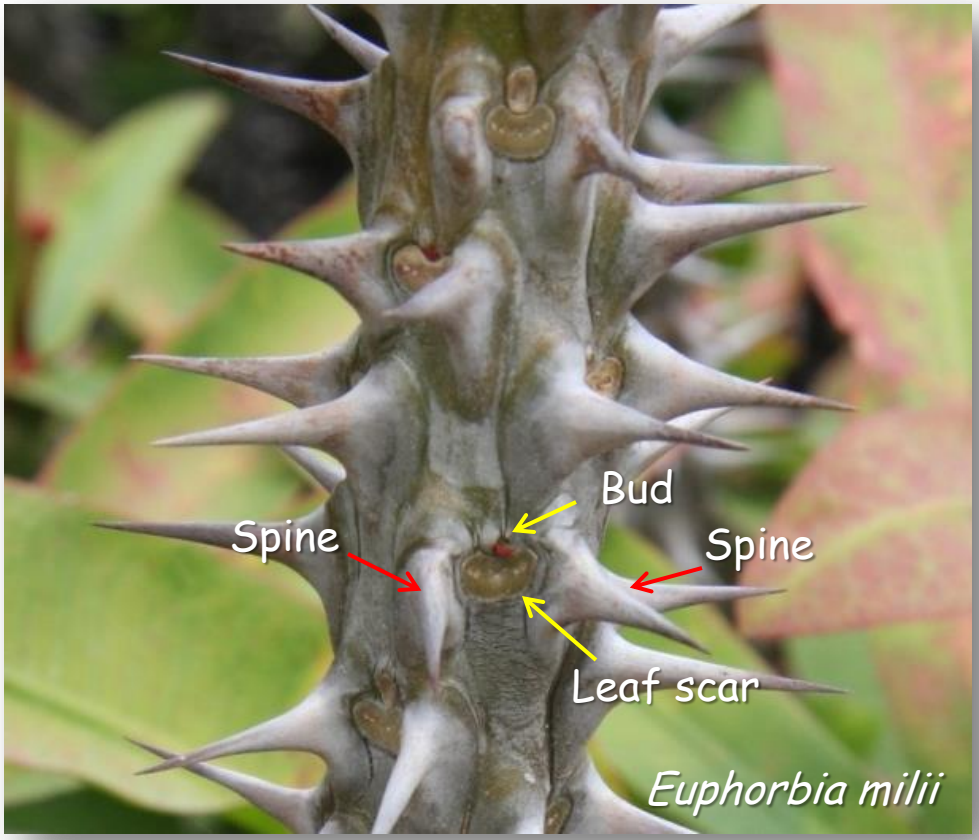
Petiole spines

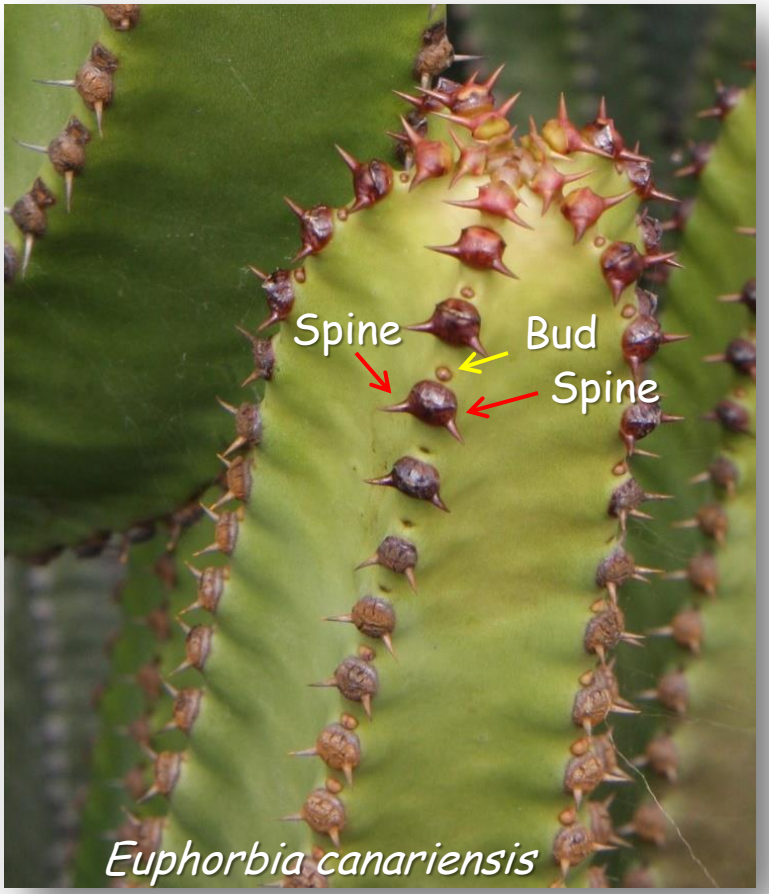
Ocotillo (*Fouquieria splendens*) produces a spine that is a fusion of the stem and the lower portion of the leaf petiole.

Thorns, Spines and Prickles

Stipule spines

In many *Euphorbia* species, the spines are modified stipules appearing on either side of the bud and leaf scar.





Thorns, Spines and Prickles

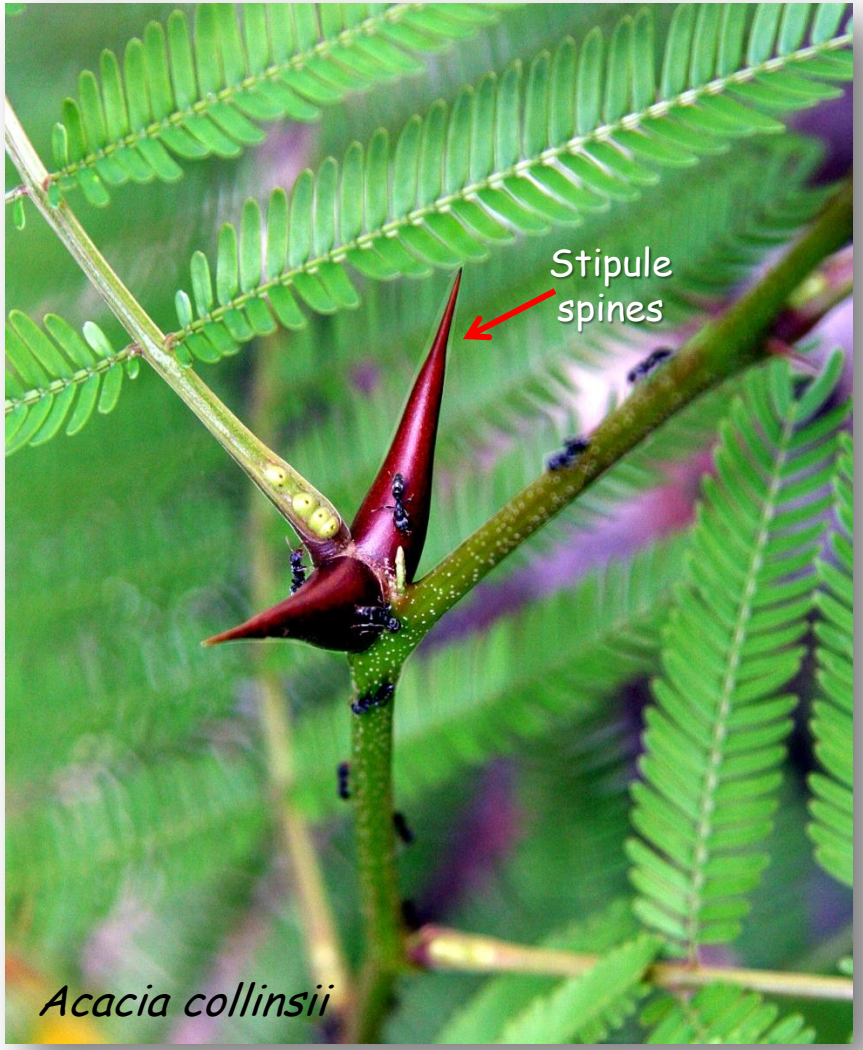
Stipule spines

The impressive spines in *Acacia* species are stipule spines.

Thorns, Spines and Prickles

In several *Acacia* species, the stipule spines are hollow and provide shelter for *Pseudomyrmex* ants.

The leaves also produce food packets called Beltian bodies for the ants. In return the ants defend the *Acacia* from insect or animal pests.



Thorns, Spines and Prickles

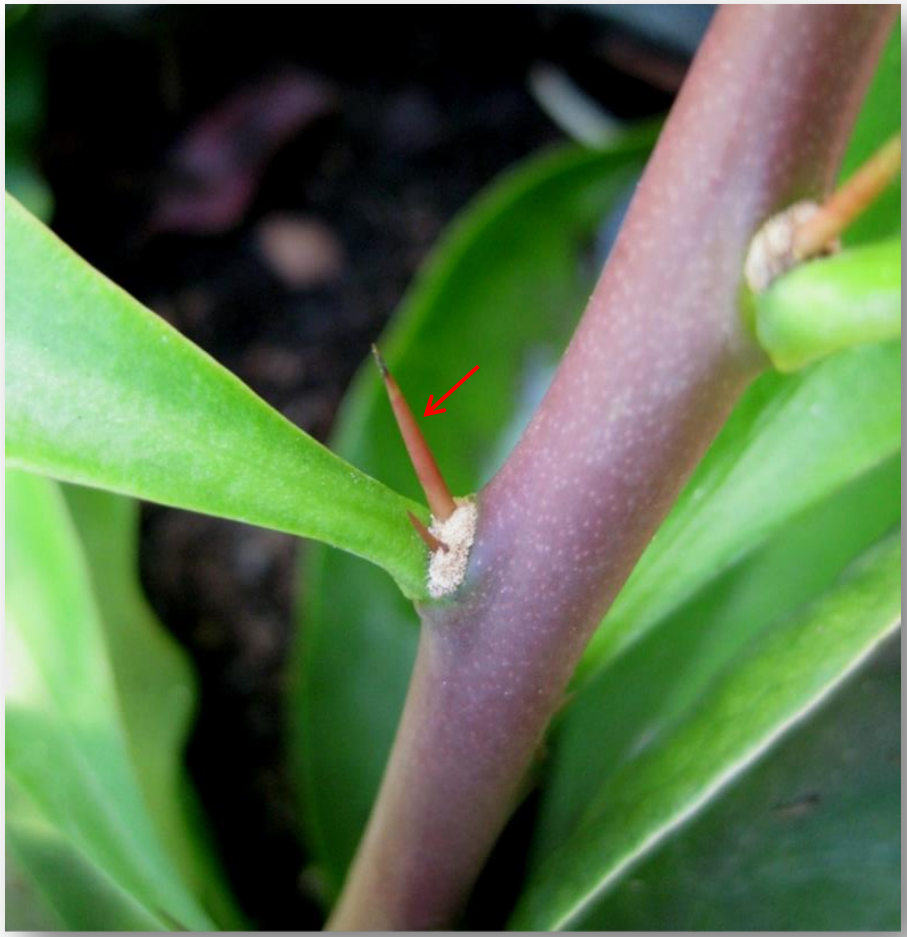
Cactus spines

Cactus spines are usually modified leaves or shoots located in the axil of a leaf. A group of spines is termed an areole.

Thorns, Spines and Prickles

Cactus spines

The early development of spines in the leafy cactus *Pereskia grandiflora* shows that the spine originates in the axil of the leaf where the axillary bud would normally produce a shoot.



Thorns, Spines and Prickles

Cactus spines

Cactus spines provide protection from animal predators and can function to shade the plant from the desert heat.

Thorns, Spines and Prickles

Prickles (emergences)

Prickles are also called emergences and occur in places other than the stem node like thorns or spines.


Rosa sericea pteracantha


Devil's walkingstick (*Aralia spinosa*)

Thorns, Spines and Prickles

Prickles (emergences)

Prickles can be very numerous and be fearsome structures.

Thorns, Spines and Prickles

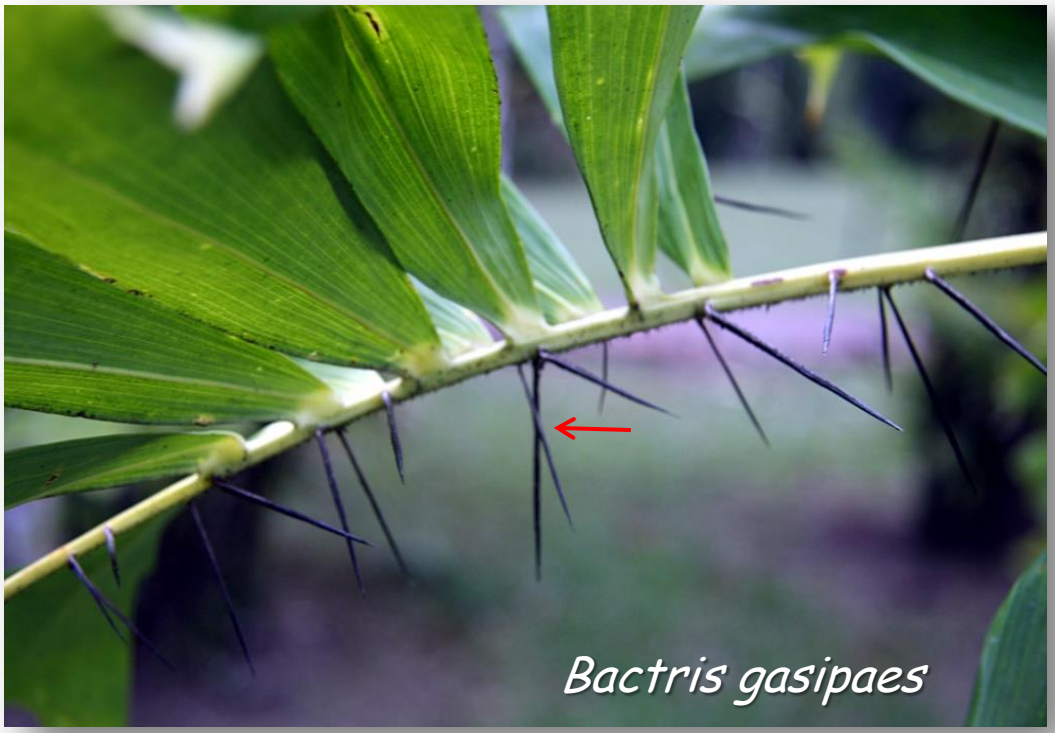
Prickles (emergences)

On some plants, prickles continue to enlarge into large structures.

Thorns, Spines and Prickles

Prickles (emergences)

The prickles formed along the stems and leaves on some palms can be spectacular.



Back to stem and leaf modification menu
Back
Next
Back to vegetative parts main menu
Main_menu

Thorns, Spines and Prickles

Prickles (emergences)

Prickles can occur on leaves and may protrude from the main veins.

Thorns, Spines and Prickles

Prickles (emergences)

Prickles may also arm the edges of a leaf or bract.

Thistle (*Cirsium*)

Holly (*Ilex*)

Thorns, Spines and Prickles

Prickles (emergences)

Prickles can also occur on fruits.

Thorns, Spines and Prickles

Prickles (emergences)

Prickles can even be seen on adventitious roots as seen on the prop roots of screw pine (*Pandanus*).

Thorns, Spines and Prickles

Prickles (emergences)

Similarly, prickles are produced on the prop roots of walking palm (*Socratea exorrhiza*).

Thorns, Spines and Prickles

Prickles (emergences)

In some cases, "thorniness" is a juvenile phase characteristic that is lost as plants age and become mature flowering trees.

This occurs in plants like honeylocust (*Gleditisia*) that produces thorns and castor-aralia (*Kalopanax*) that produces prickles.